HYGIENETECH
Hygiene Technologies International, Inc.

3625 Del Amo Boulevard, Suite 180
Torrance, California 90503-1643
(310) 370-8370
(310) 370-7026 FAX
www.hygienetech.com

April 2, 2010

State of California
Board of Equalization
450 N Street
Sacramento, California 94279

Document No. 20910001.4

Attention: David Gau

Regarding: Limited Indoor Air Quality Survey
9TH Floor Pre-Occupancy Assessment

Dear Mr. Gau:

On January 8, 2010, industrial hygienists with Hygiene Technologies International, Inc. (HygieneTech) conducted a limited indoor air quality survey on the 9th Floor of the State of California State Board of Equalization (BOE) building located at the above mentioned address. This survey was performed in response to BOE's need to reoccupy the 9th Floor subsequent to fungal growth remediation and other renovation work performed under the direction of the State of California Department of General Services (DGS) on that floor. At the time of the survey, various samples were collected and direct-reading instruments were used to assess the general indoor air quality. I have enclosed our report, which included general observations, sample and direct-reading results, a discussion of the data, conclusions, and recommendations.

If you have any comments or questions regarding the information contained in this report, please do not hesitate to contact our offices directly at (310) 370-8370.

Sincerely,

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

Brian P. Daly, CIH, PE
President

HYGIENETECH
Hygiene Technologies International, Inc.
3625 Del Amo Boulevard, Suite 180
Torrance, California 90503-1643
(310) 370-8370
(310) 370-7026 FAX
www.hygienetech.com

LIMITED INDOOR AIR QUALITY SURVEY
PRE-OCCUPANCY ASSESSMENT – 9TH FLOOR

450 N STREET
SACRAMENTO, CALIFORNIA

PREPARED FOR:

STATE OF CALIFORNIA
BOARD OF EQUALIZATION
450 N STREET
SACRAMENTO, CALIFORNIA

PREPARED BY:

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.
3625 DEL AMO BOULEVARD, SUITE 180
TORRANCE, CALIFORNIA

APRIL 2, 2010

1.0 BACKGROUND

On January 8, 2010, industrial hygienists with Hygiene Technologies International, Inc. (HygieneTech) conducted a limited indoor air quality survey on the 9th Floor of the State of California State Board of Equalization (BOE) building located at 450 N Street in Sacramento, California. This survey was performed in response to BOE's need to reoccupy the 9th Floor subsequent to fungal growth remediation and other renovation work performed under the direction of the State of California Department of General Services (DGS) on that floor. During the survey, a variety of samples were collected and direct-reading instruments were used to assess the general indoor air quality on the 9th Floor of the subject building. Various air samples were collected in order to assess fungal growth exposure potentials. In addition, air samples were collected throughout the floor for fibrous dust, 4-phenylcyclohexene, formaldehyde, and total dust analysis. Direct-reading instruments were also used to determine airborne volatile organic compounds (VOCs), carbon dioxide (CO_2), air temperature, and relative humidity.

2.0 OBSERVATIONS

The interior building materials of the 9th Floor included, but were not limited to, metal window frames; painted gypsum board and/or metal windowsills; metal doorjambs and door frames; painted gypsum board walls in the general work areas; tile covered walls and painted gypsum board ceilings in the restrooms; suspended 2' by 4' ceiling tiles and or gypsum board ceilings in the general work areas; and ceramic or vinyl tile flooring in the restrooms and break rooms.

The floor was unoccupied on the survey dates but was furnished with typical office desks, upholstered chairs, shelves, fabric covered cubicles, and other general office items. Note that new carpet had been installed and fresh paint had been applied throughout the floor in the weeks preceding the survey date.

3.0 SAMPLING AND ANALYSIS

Air samples were collected and subsequently analyzed for fungi (including yeasts, molds, rusts, smuts, and mushrooms) by trained and experienced microbiologists at a laboratory accredited by the American Industrial Hygiene Association (AIHA) and that successfully participates in the AIHA Environmental Microbiology Proficiency Analytical Testing (EMPAT) Program. Other samples were collected for airborne fibers, 4-phenylcyclohexene, formaldehyde, and total dust determinations using either SKC® brand Airchek® 52 sampling pumps or Gast high volume air sampling pumps and the appropriate sampling media. Pump flow rates were established and verified using a BIOS DryCal DC-Lite primary flow meter. Those samples were collected and analyzed along with blanks (identical sampling media through which no air was drawn) at laboratories accredited by the American Industrial Hygiene Association (AIHA) through successful participation in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing Program. Direct-reading instruments were used to determine airborne VOC levels, the results of which appear in Table 21001001-6 in Appendix A of this report. A discussion of the airborne CO_2 data, along with air temperature and relative humidity results, appears in Section 4.0 of this report. Additional information concerning the specific sampling and analytical methods appears below.

3.0 SAMPLING AND ANALYSIS (CONTINUED)

3.1 Airborne Total Fungi

Air samples for airborne total (viable and nonviable) fungi determinations were collected using a Zefon brand Bio-Pump™ equipped with Air-O-Cell™ cassettes. All such samples were collected at various indoor locations and two samples were collected outdoors on for comparison purposes. The resultant data, which are presented in spores per cubic meter of air (spores/M^3), appear in Table 21001001-1.

3.2 Airborne Fibrous Dust

Area air samples for fibrous dust were collected at stationary locations on 25-millimeter diameter, 0.8-micrometer pore size, mixed cellulose ester filters. The samples were analyzed by phase contrast microscopy (PCM) in accordance with the NIOSH Method 7400. These data are presented in fibers per cubic centimeter (f/cc) of air in Table 21001001-2.

3.3 Airborne Total Dust

Area air samples for total dust determination were collected at stationary locations on filter cassettes containing pre-weighed 37-millimeter diameter, polyvinyl chloride filters having a pore size of five micrometers. The samples were analyzed by gravimetric method in accordance with the NIOSH Method 0500. These data are presented in milligrams per cubic meter of air (mg/M^3) and appear in Table 21001001-3.

3.4 Formaldehyde

Area air samples were collected for formaldehyde determinations using DNPH silica gel sorbent tubes. The analyses were performed by high performance liquid chromatography using an ultraviolet detector in accordance with a modified NIOSH Method 2016. These data are presented in parts per million (ppm) and appear in Table 21001001-4.

3.5 Airborne 4-Phenylcyclohexene

Area air samples for 4-phenylcyclohexene were collected by the mini-canisters that were equipped with 6 hour regulators, and each sample was analyzed by gas chromatography with mass spectrometry detection (GC-MS) in accordance with the modified OSHA PV2120/U.S. EPA Method TO15. These data are presented in parts per billion volume (ppbv) and appear in Table 21001001-5.

3.6 Airborne Volatile Organic Compounds

Direct-reading air measurements for VOCs were also recorded at various locations on the 9th Floor using a RAE Systems, Inc. Mini-RAE 2000 photoionization detector, which is capable of detecting a wide variety of unsaturated hydrocarbons at airborne concentrations ranging from 0.1 to 10,000 parts per million (ppm). Prior to the survey, this instrument was calibrated using a 100-ppm isobutylene gas standard. These data are presented in ppm.

3.0 SAMPLING AND ANALYSIS (CONTINUED)

3.7 Airborne Carbon Dioxide

Direct-reading air measurements for airborne CO_2 concentration were recorded at stationary locations in each quadrant of the floor using a Telaire® 7001 Carbon Dioxide and Temperature Monitor. The data are presented in ppm.

3.8 Air Temperature and Relative Humidity

Air temperature and relative humidity data were recorded at stationary locations using an Extech Instrument hygro-thermometer.

4.0 DISCUSSION

4.1 Airborne Total Fungi

The airborne total fungi data showed mostly common spore types outdoors such as, ascospores, basidiospores, *Cladosporium*, colorless spores typical of *Penicillium* and *Aspergillus* species, *Epicoccum*, *Oidium*, and/or smuts, with basidiospores predominating. Indoors, the ambient data showed that airborne fungal spores were either not detected at or above the laboratory analytical detection limit or were detected at low airborne concentrations that included one or more of the following common fungal spore types: *Alternaria*, basidiospores, *Cladosporium*, and/or colorless spores typical of *Penicillium* and *Aspergillus* species. Indoors, the distribution of fungal spore types detected in the surveyed areas was consistent with those found outdoors, and the overall data within the tested areas were well below the overall data recorded outdoors. These data are not believed to pose a health risk beyond that posed by the outdoor environment where exposures to airborne fungi are expected.

4.2 Airborne Fibrous Dust

The data recorded in the surveyed areas indicated that airborne fibrous dusts were not detected at or above the laboratory detection limit of 0.003 f/cc. Because the samples were collected at stationary locations at approximate breathing zone height, the resultant data are expected to represent building occupant *exposure potentials* for those persons working in or passing through the areas monitored. These data, which are expected to represent employee *exposure potentials* to fibers of various types, including man-made and natural mineral fibers, cellulosics (paper or wood composition), gypsum, and other fibrous dusts common in the environment, are well below the current Cal-OSHA 8-hour TWA PEL for asbestos fibers of 0.1 f/cc, the most restrictive exposure limit for fibrous dusts.

4.3 Airborne Total Dust

Common dust that is typically identified in buildings usually contains a wide variety of materials including, but not limited to, gypsum crystals, cellulosic particles, fiberglass fragments, mineral grains from soil, fungi spores, fine glass fibers, textile and wood fibers, iron or steel fragments, dead skin cells, insect parts, animal dander, and pollens. Generally, exposure to low levels of such materials

4.0 DISCUSSION (CONTINUED)

4.3 Airborne Total Dust (Continued)

does not produce ill effects in most persons. In fact, these so-called *nuisance dusts* have a long history of little adverse effect to the lungs and are not known to produce significant diseases or toxic effects, such as collagen (scar tissue) formation, when exposure are kept under reasonable control.

The data recorded in the surveyed areas showed that airborne total dust was not detected at or above the laboratory analytical detection limit of 0.21. Because the samples were collected at stationary locations at approximate breathing zone height, the resultant data are expected to represent building occupant *exposure potentials* for those persons working in or passing through the areas monitored. These data are well below the State of California, Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) 8-hour time-weighted average (TWA) permissible exposure limit (PEL) for total dust of 10 mg/M^3, as defined in Title 8 of the California Code of Regulations, Section 5155 (T8, CCR § 5155). Note that these data are also well below the American Conference of Governmental Industrial Hygienists 8-hour TWA threshold limit value (TLV-TWA) for particulate (not otherwise classified) of 10 mg/M^3; the U.S. Environmental Protection Agency (EPA) National Ambient Air Quality Primary Standard of 0.26 mg/M^3 (24-hour standard); and the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE) theoretical value for non-occupational environments of 1/10 of the TLV.

4.4 Formaldehyde

The data recorded in the surveyed areas indicated that airborne formaldehyde was either not detected at or above the laboratory analytical detection limit or were detected at levels of 0.01 ppm. Because these samples were collected at stationary locations at approximate breathing zone height, the resultant data are expected to represent building occupant *exposure potentials* for those persons working in or passing through the areas monitored. These data are well below the State of California, Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) 8-hour time-weighted average (TWA) permissible exposure limit (PEL) for Formaldehyde of 0.75 ppm, as defined in Title 8 of the California Code of Regulations, Section 5155 (T8, CCR § 5155).

4.5 Airborne 4-Phenylcyclohexene

The airborne data indicated that 4-phenylcyclohexene was not detected at or above the laboratory analytical detection limit of 4.0 ppbv. Although current standards or guidelines have not been established for 4-phenylcyclohexene at the time of this report, all such data are considered unremarkable.

4.6 Airborne Volatile Organic Compounds

With the use of a direct-reading photoionization detector, VOCs were either not detected at or above the instrument detection limit of 0.1 ppm or were detected at peak levels of 0.1 ppm. Because these data were recorded at stationary locations at approximate breathing zone height, the results are expected to represent building occupant *exposure* potentials for those persons occupying or passing through the areas monitored. These data were well below the surrogate Cal-OSHA PELs that are often used for comparative purposes regarding VOC exposures, such as those for gasoline, hexane, and varnish makers and painters (VM&P) naphtha.

4.0 DISCUSSION (CONTINUED)

4.7 Airborne Carbon Dioxide

On January 8, 2010, the direct-reading results indicated that CO_2 was detected at levels ranging from 586 to 666 ppm on the 9th Floor. While these data were somewhat higher than the expected outdoor CO_2 levels, which generally range between 320 and 350 ppm, they are considered normal for indoor environments and they are all well below the Cal-OSHA 8-hour TWA PEL for CO_2 of 5000 ppm (T8, CCR, § 5155). They are also below the level of 1000 ppm, which is essentially equivalent to the recommended upper limit for building occupant comfort and odor control established by ASHRAE (not greater than 700 ppm above the outdoor CO_2 value) as stated in ASHRAE 62-2001.

Based on historic studies performed by HygieneTech, building occupant complaints of "stuffy" air often begin when CO_2 levels exceed 800 ppm. HygieneTech has also found that some sensitive persons may experience discomfort, including eye irritation and headache, when CO_2 levels reach 1,000 ppm. Such symptoms are not believed to be the result of an unhealthful exposure to CO_2; rather, they are thought to be the result of exposure to other common indoor air pollutants which, if not exhausted and/or diluted, can accumulate over time.

4.8 Air Temperature and Relative Humidity

On January 8, 2010, the air temperatures ranged between 72.1 and 74.4 degrees Fahrenheit (°F). Based on the experience of HygieneTech, the air temperatures perceived as comfortable by most persons in office environments, and recommended by ASHRAE for occupant comfort, range between 68.0 and 74.5°F (winter) and 73.0 and 79.0°F (summer).

Relative humidity data were recorded indoors at levels ranging from 34.3 to 37.9 percent. Such levels were well within the 20 to 60 percent relative humidity level range recommended by ASHRAE for occupant comfort. Note that HygieneTech recommends that the relative humidity in buildings not exceed 50 percent in order to limit the potential for fungal growth.

5.0 CONCLUSIONS

5.1 The airborne total fungi data recorded in the surveyed areas showed airborne fungi levels that were below those recorded outdoors and therefore considered unremarkable. These data are not believed to pose a health risk beyond that posed by the outdoor environment where exposures to airborne fungi are expected.

5.2 The airborne total and fibrous dust, 4-phenylcyclohexene, formaldehyde, VOC, and CO_2 levels recorded during the survey were unremarkable. Collectively, the data were well below applicable Cal-OSHA 8-hour TWA PELs and/or other occupational, non-occupational, ASHRAE, or foreign guidelines. The data are not expected to represent conditions that pose a measurable health risk to the building occupants.

5.0 CONCLUSIONS (CONTINUED)

5.3 On January 8, 2010, air temperatures ranged between 72.1 and 74.4 degrees Fahrenheit (°F). Based on the experience of HygieneTech, the air temperatures perceived as comfortable by most persons in office environments, and recommended by ASHRAE for occupant comfort, range between 68.0 and 74.5°F (winter) and 73.0 and 79.0°F (summer). Relative humidity data were recorded indoors at levels ranging from 34.3 to 37.9 percent. Such levels were well within the 20 to 60 percent relative humidity level range recommended by ASHRAE for occupant comfort. Note that HygieneTech recommends that the relative humidity in buildings not exceed 50 percent in order to limit the potential for fungal growth.

5.4 Be advised that the data provided in this report only represent fungal growth exposure potentials that existed at the time the survey was performed and at the precise sample locations only, the latter of which were selected based on the available background information provided. Note that fungal growth and exposure potentials may change due to changes in environmental conditions (such as those caused by water intrusion), use of mechanical systems, or other factors. Also be advised that additional fungal growth may exist at one or more locations in the structure that were not specifically assessed during the survey.

6.0 RECOMMENDATIONS

All such recommendations are based strictly on the assessment information and analytical data that were available to HygieneTech at the time this report was prepared. Be advised that, in order to establish data that accurately reflects all the fungal growth sites on the 9th Floor, additional assessment evaluations may be required as more information is known regarding the history of water intrusion episodes in discrete building areas.

6.1 Additional fungal growth remediation is potentially required within the core of the 9th Floor due to known fungal growth reservoirs confirmed in similar areas on other floors during destructive testing, as stated by LaCroix Davis, LLC in their *California State Board of Equalization Building Assessment – Final Report* dated February 29, 2009. The purpose of this assessment was to allow the BOE to safely reoccupy the 9th Floor. Until such time that these confirmed fungal growth and perhaps other unknown reservoirs are remediated within the structure, it is highly likely that complaints related to fungal growth-like odors, which has been a common concern on several floors, will continue to be an issue. The HygieneTech investigation into the odor complaints, conclusions, and recommendations can be found in HygieneTech Document No. 20903001.1 dated May 4, 2009.

6.2 If not yet established, an accurate record of all air monitoring results should be maintained in accordance with Cal-OSHA regulation found in T8, CCR § 3204. All affected employees should be informed that the *exposure potential* data in this report exist and that those persons, or their representatives, have a right to access relevant exposure data and medical records.

6.3 Air temperatures levels on the 9th Floor should be adjusted to the appropriate ranges recommended by ASHRAE for occupant comfort.

6.0 RECOMMENDATIONS (CONTINUED)

6.3 Also be advised that the exposure data recorded during the survey may not be sufficiently broad to adequately assess the suitability of the indoor air quality for all individuals, particularly those who are extremely sensitive to certain chemical and/or biological substances or for those individuals with immune system deficiencies. Although not expected, if persons occupying or passing through the 9th Floor do experience non-specific ill effects of unknown etiology, then those affected should be referred to a medical professional in order to determine or specify the possible cause(s) of such reactions. If more information becomes available, further investigation and air monitoring may be warranted.

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

Kenny K. Hsi, CIH
Technical Director

Date: April 2, 2010

Brian P. Daly, CIH, PE
President

Date: April 2, 2010

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A

CLIENT: State of California
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21001001-1
AIRBORNE TOTAL FUNGI RESULTS
9TH FLOOR
SACRAMENTO, CALIFORNIA
JANUARY 8, 2010

Results reported in spores per cubic meter of air (spores/M^3)

SAMPLE NUMBER	**21001001-1 TM01OUTWF**	**21001001-1 TM02WF**	**21001001-1 TM03WF**	**21001001-1 TM04WF**
SAMPLING LOCATION/ACTIVITIES	Outdoors; about 20 feet east of building; approximately five feet above ground/Normal outdoor activities	Column N22 area; adjacent to Cubicle 111; about center; approximately five feet above floor/Sampling activities only	Column N20 area; Cubicle 119; approximately five feet above floor/Sampling activities only	Column N18 area; Cubicle 152; approximately five feet above floor/Sampling activities only
START/STOP	09:08:00/09:13:00	09:30:00/09:35:00	09:40:00/09:45:00	09:50:00/09:55:00
SAMPLE TIME	5 minutes	5 minutes	5 minutes	5 minutes
Alternaria			13	
Ascospores	270			
Aureobasidium				
Basidiospores	7,600		53	
Bipolaris/Drechslera group				
Botrytis				
Chaetomium				
Cladosporium	1,500			
Curvularia				
Epicoccum	13			
Fusarium				
Nigrospora				
Oidium				
Other brown				
Penicillium/Aspergillus types	1,100	53		
Rusts				
Smuts, Periconia, Myxomycetes	13			
Stachybotrys				
Stemphylium				
Torula				
Trichocladium				
Ulocladium				
Zygomycetes				
Hyphal fragments	13	<13	<13	<13
Background debris*	2+	2+	1+	2+
TOTAL**	11,000	53	67	<13

*Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

**Note that all reported counts have been rounded to no more than two significant figures based on the sampling and analytical methods used, and therefore the total count may not equal the sum of the individual counts in a column.

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A

CLIENT: State of California
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21001001-1
AIRBORNE TOTAL FUNGI RESULTS
9TH FLOOR
SACRAMENTO, CALIFORNIA
JANUARY 8, 2010

Results reported in spores per cubic meter of air (spores/M^3)

	21001001-1 TM05WF	21001001-1 TM06WF	21001001-1 TM07WF	21001001-1 TM08WF
SAMPLING LOCATION/ACTIVITIES	Column L18 area; Cubicle 6; about 15 feet east of L18 column; approximately five feet above floor/Sampling activities only	Column K18 area; Cubicle 47; approximately five feet above floor/Sampling activities only	Column K20 area; Cubicle 66; approximately five feet above floor/Sampling activities only	Column K22 area; Cubicle 75; approximately five feet above floor/Sampling activities only
START/STOP	10:00:00/10:05:00	10:06:00/10:11:00	10:12:00/10:17:00	10:18:00/10:23:00
SAMPLE TIME	5 minutes	5 minutes	5 minutes	5 minutes
Alternaria				
Ascospores				
Aureobasidium				
Basidiospores				53
Bipolaris/Drechslera group				
Botrytis				
Chaetomium				
Cladosporium		53		
Curvularia				
Epicoccum				
Fusarium				
Nigrospora				
Oidium				
Other brown				
Penicillium/Aspergillus types			110	
Rusts				
Smuts, Periconia, Myxomycetes				
Stachybotrys				
Stemphylium				
Torula				
Trichocladium				
Ulocladium				
Zygomycetes				
Hyphal fragments	<13	<13	27	27
Background debris*	1+	1+	2+	1+
TOTAL**	<13	53	110	53

*Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

**Note that all reported counts have been rounded to no more than two significant figures based on the sampling and analytical methods used, and therefore the total count may not equal the sum of the individual counts in a column.

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A

CLIENT: State of California
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21001001-1
AIRBORNE TOTAL FUNGI RESULTS
9TH FLOOR
SACRAMENTO, CALIFORNIA
JANUARY 8, 2010

Results reported in spores per cubic meter of air (spores/M^3)

SAMPLE NUMBER	**21001001-1 TM09WF**	**21001001-1 TM10OUTWF**		
SAMPLING LOCATION/ACTIVITIES	Column M22 area; Cubicle 82; approximately five feet above floor/Sampling activities only	Outdoors; about 20 feet east of building; approximately five feet above ground/Normal outdoor activities	This column intentionally left blank	This column intentionally left blank
START/STOP	10:25:00/10:30:00	10:37:00/10:42:00		
SAMPLE TIME	5 minutes	5 minutes		
Alternaria				
Ascospores		430		
Aureobasidium				
Basidiospores		8,700		
Bipolaris/Drechslera group				
Botrytis				
Chaetomium				
Cladosporium	110	1,700		
Curvularia				
Epicoccum		13		
Fusarium				
Nigrospora				
Oidium		13		
Other brown				
Penicillium/Aspergillus types		530		
Rusts				
Smuts, Periconia, Myxomycetes		13		
Stachybotrys				
Stemphylium				
Torula				
Trichocladium				
Ulocladium				
Zygomycetes				
Hyphal fragments	<13	27		
Background debris*	1+	2+		
TOTAL**	110	11,000		

*Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

**Note that all reported counts have been rounded to no more than two significant figures based on the sampling and analytical methods used, and therefore the total count may not equal the sum of the individual counts in a column.

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A

CLIENT: State of California
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21001001-2
9TH FLOOR
AIRBORNE FIBERS RESULTS
SACRAMENTO, CALIFORNIA
JANUARY 8, 2010

NAME/ REFERENCE	LOCATION/ ACTIVITIES	PPE USED	SAMPLE NUMBER	START/ STOP	SAMPLE TIME	CONTAMINANT	RESULTS (f/cc)	PEL (f/cc)
Area Sample	Quiet Room 904; about center; approximately four feet above floor/Sampling activities only	N/A	21001001-2 F01WF	08:10/ 12:10	240 minutes	Fibers	**< 0.003**	0.1
Area Sample	Column L18 area; Cubicle 6; approximately five feet above floor/Sampling activities only	N/A	21001001-2 F02WF	08:15/ 12:15	240 minutes	Fibers	**<0.003**	0.1
Area Sample	Column K20 area; Cubicle 66; approximately five feet above floor/Sampling activities only	N/A	21001001-2 F03WF	12:10/ 16:10	240 minutes	Fibers	**<0.003**	0.1
Area Sample	Column M22 area; Cubicle 82; approximately five feet above floor/Sampling activities only	N/A	21001001-2 F04WF	12:15/ 16:15	240 minutes	Fibers	**<0.003**	0.1
Blank	N/A	N/A	21001001-2 F05BLANK WF	N/A	N/A	Fibers	All data blank corrected	N/A

LEGEND

PPE: Personal protective equipment
N/A: Not applicable
PEL: Cal-OSHA 8-hour time-weighted average permissible exposure limit

<: Less than
f/cc: Fibers per cubic centimeter of air

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A

CLIENT: State of California
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21001001-3
9TH FLOOR
AIRBORNE TOTAL DUST RESULTS
SACRAMENTO, CALIFORNIA
JANUARY 8, 2009

NAME/ REFERENCE	LOCATION/ ACTIVITIES	PPE USED	SAMPLE NUMBER	START/ STOP	SAMPLE TIME	CONTAMINANT	RESULTS (mg/M^3)	PEL (mg/M^3)
Area Sample	Quiet Room 904; about center; approximately four feet above floor/Sampling activities only	N/A	21001001-3 TD01WF	08:20/ 12:20	240 minutes	Total Dust	**<0.21**	10
Area Sample	Column L18 area; Cubicle 6; approximately five feet above floor/Sampling activities only	N/A	21001001-3 TD02WF	08:22/ 12:22	240 minutes	Total Dust	**<0.21**	10
Area Sample	Column K20 area; Cubicle 66; approximately five feet above floor/Sampling activities only	N/A	21001001-3 TD03WF	08:25/ 12:25	240 minutes	Total Dust	**<0.21**	10
Area Sample	Column M22 area; Cubicle 82; approximately five feet above floor/Sampling activities only	N/A	21001001-3 TD04WF	08:27/ 12:27	240 minutes	Total Dust	**<0.21**	10
Blank	N/A	N/A	21001001-3 TD05BLANK WF	N/A	N/A	Total Dust	All data blank corrected	N/A

LEGEND

PPE: Personal protective equipment
N/A: Not applicable
mg/M^3: Milligrams per cubic meter

<: Less than
PEL: Cal-OSHA 8-hour time-weighted average permissible exposure limit

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A

CLIENT: State of California
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21001001-4
9TH FLOOR
AIRBORNE FORMALDEHYDE RESULTS
SACRAMENTO, CALIFORNIA
JANUARY 8, 2010

NAME/ REFERENCE	LOCATION/ ACTIVITIES	PPE USED	SAMPLE NUMBER	START/ STOP	SAMPLE TIME	CONTAMINANT	RESULTS (ppm)	PEL (ppm)
Blank	N/A	N/A	21001001-4 FO01Blank WF	N/A	N/A	Formaldehyde	All data blank corrected	Blank
Area Sample	Quiet Room 904; about center; approximately four feet above floor/Sampling activities only	N/A	21001001-4 FO02WF	13:05/ 14:35	75 minutes	Formaldehyde	**<0.005**	0.75
Area Sample	Column L18 area; Cubicle 6; approximately five feet above floor/Sampling activities only	N/A	21001001-4 FO03WF	13:10/ 14:40	75 minutes	Formaldehyde	**0.01**	0.75
Area Sample	Column K20 area; Cubicle 66; approximately five feet above floor/Sampling activities only	N/A	21001001-4 FO04WF	13:15/ 14:45	75 minutes	Formaldehyde	**0.01**	0.75
Area Sample	Column M22 area; Cubicle 82; approximately five feet above floor/Sampling activities only	N/A	21001001-4 FO05WF	13:20/ 14:50	75 minutes	Formaldehyde	**0.01**	0.75

LEGEND

PPE: Personal protective equipment
N/A: Not applicable
ppm: Parts per million
<: Less than
PEL: Cal-OSHA 8-hour time-weighted average permissible exposure limit

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A

CLIENT: State of California
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21001001-5
9TH FLOOR
AIRBORNE 4-PHENYLCYCLOHEXENE RESULTS
SACRAMENTO, CALIFORNIA
JANUARY 8, 2010

NAME/ REFERENCE	LOCATION/ ACTIVITIES	PPE USED	SAMPLE NUMBER	START/ STOP	SAMPLE TIME	CONTAMINANT	RESULTS (ppbv)	PEL (ppm)
Area Sample	Conference Room 907; about center; approximately four feet above floor/Sampling activities only	N/A	21001001-5 M01WF	07:45/ 13:45	360 minutes	4-Phenylcyclohexene	**<4.0**	N/A
Area Sample	Quiet Room 904; about center; approximately four feet above floor/Sampling activities only	N/A	21001001-5 M02WF	07:50/ 13:50	360 minutes	4-Phenylcyclohexene	**<4.0**	N/A

LEGEND

PPE: Personal protective equipment
N/A: Not applicable
PPBV: Parts per billion volume

<: Less than
PEL: Cal-OSHA 8-hour time-weighted average permissible exposure limit

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A

CLIENT: California State
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21001001-6
9TH FLOOR
DIRECT-READING RESULTS
SACRAMENTO, CALIFORNIA
JANUARY 8, 2010

LOCATION/SITE ACTIVITIES	SAMPLE TIME	CONTAMINANT	RESULTS (ppm)	COMMENTS
Eastern quadrant; various locations/Sampling activities only	10:17/10:27	Volatile Organic Compounds	Average: <0.1 Peak: 0.1	N/A
Southern quadrant; various locations/Sampling activities only	10:28/10:38	Volatile Organic Compounds	Average: <0.1 Peak: 0.1	N/A
Northern quadrant; various locations/Sampling activities only	10:39/10:49	Volatile Organic Compounds	Average: <0.1 Peak: 0.1	N/A
Western quadrant; various locations/Sampling activities only	10:50/11:00	Volatile Organic Compounds	Average: <0.1 Peak: 0.1	N/A

LEGEND

ND: Not detected
<: Less than
N/A: Not applicable
ppm: Parts per million

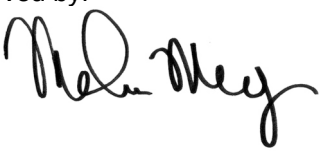
EMLab P&K

Report for:

Mr. Wesley Frey, Mr. Syed Mehdi
Hygiene Technologies International, Inc.: Northern California
3625 Del Amo Boulevard, Suite 180
Torrance, CA 90503-8370

Regarding: Project: 21001001-1
EML ID: 615978

Approved by:



Lab Manager
Malcolm Moody

Dates of Analysis:
Spore trap analysis: 01-12-2010

Service SOPs: Spore trap analysis (I100000)

Document Number: 200091 - Revision Number: 5

EMLab P&K
880 Riverside Parkway, West Sacramento, CA 95605
(866) 888-6653 Fax (650) 829-5852 www.emlab.com

Client: Hygiene Technologies International, Inc.: Northern California
C/O: Mr. Wesley Frey, Mr. Syed Mehdi
Re: 21001001-1

Date of Receipt: 01-11-2010
Date of Report: 01-12-2010

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	21001001-1-TM01OUTWF		21001001-1-TM02WF		21001001-1-TM03WF		21001001-1-TM04WF	
Comments (see below)	None		None		None		A	
Lab ID-Version‡:	2729512-1		2729513-1		2729514-1		2729515-1	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria					1	13		
Arthrinium								
Ascospores*	5	270						
Aureobasidium								
Basidiospores*	143	7,600			1	53		
Bipolaris/Drechslera group								
Botrytis								
Chaetomium								
Cladosporium	28	1,500						
Curvularia								
Epicoccum	1	13						
Fusarium								
Myrothecium								
Nigrospora								
Oidium								
Penicillium/Aspergillus types†	21	1,100	1	53				
Pithomyces								
Rusts*								
Smuts*, Periconia, Myxomycetes*	1	13						
Stachybotrys								
Stemphylium								
Torula								
Ulocladium								
Zygomycetes								
Background debris (1-4+)††	2+		2+		1+		2+	
Hyphal fragments/m3	13		< 13		< 13		< 13	
Pollen/m3	13		< 13		< 13		< 13	
Skin cells (1-4+)	< 1+		1+		1+		1+	
Sample volume (liters)	75		75		75		75	
§ TOTAL SPORES/m3		11,000		53		67		< 13

Comments: A) No spores detected

* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher then reported. It is important to account for samples volumes when evaluating dust levels.
The Limit of Detection is the product of a raw count of 1 and 100 divided by the percent read. The analytical sensitivity (counts/m3) is the product of the Limit of Detection and 1000 divided by the sample volume.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

EMLab P&K
880 Riverside Parkway, West Sacramento, CA 95605
(866) 888-6653 Fax (650) 829-5852 www.emlab.com

Client: Hygiene Technologies International, Inc.: Northern California
C/O: Mr. Wesley Frey, Mr. Syed Mehdi
Re: 21001001-1

Date of Receipt: 01-11-2010
Date of Report: 01-12-2010

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	21001001-1-TM05WF		21001001-1-TM06WF		21001001-1-TM07WF		21001001-1-TM08WF	
Comments (see below)	A		B		B		B	
Lab ID-Version‡:	2729516-1		2729517-1		2729518-1		2729519-1	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria								
Arthrinium								
Ascospores*								
Aureobasidium								
Basidiospores*							1	53
Bipolaris/Drechslera group								
Botrytis								
Chaetomium								
Cladosporium			1	53				
Curvularia								
Epicoccum								
Fusarium								
Myrothecium								
Nigrospora								
Oidium								
Penicillium/Aspergillus types†					2	110		
Pithomyces								
Rusts*								
Smuts*, Periconia, Myxomycetes*								
Stachybotrys								
Stemphylium								
Torula								
Ulocladium								
Zygomycetes								
Background debris (1-4+)††	1+		1+		2+		1+	
Hyphal fragments/m3	< 13		< 13		27		27	
Pollen/m3	< 13		< 13		< 13		< 13	
Skin cells (1-4+)	< 1+		1+		< 1+		1+	
Sample volume (liters)	75		75		75		75	
§ TOTAL SPORES/m3		< 13		53		110		53

Comments: A) No spores detected. B) Analysis of replicate sample is delayed.
* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher then reported. It is important to account for samples volumes when evaluating dust levels.
The Limit of Detection is the product of a raw count of 1 and 100 divided by the percent read. The analytical sensitivity (counts/m3) is the product of the Limit of Detection and 1000 divided by the sample volume.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

EMLab P&K
880 Riverside Parkway, West Sacramento, CA 95605
(866) 888-6653 Fax (650) 829-5852 www.emlab.com

Client: Hygiene Technologies International, Inc.: Northern California
C/O: Mr. Wesley Frey, Mr. Syed Mehdi
Re: 21001001-1

Date of Receipt: 01-11-2010
Date of Report: 01-12-2010

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	21001001-1-TM09WF		21001001-1-TM10OUTWF	
Comments (see below)	B		B	
Lab ID-Version‡:	2729520-1		2729521-1	
	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria				
Arthrinium				
Ascospores*			8	430
Aureobasidium				
Basidiospores*			164	8,700
Bipolaris/Drechslera group				
Botrytis				
Chaetomium				
Cladosporium	2	110	32	1,700
Curvularia				
Epicoccum			1	13
Fusarium				
Myrothecium				
Nigrospora				
Oidium			1	13
Other colorless				
Penicillium/Aspergillus types†			10	530
Pithomyces				
Rusts*				
Smuts*, Periconia, Myxomycetes*			1	13
Stachybotrys				
Stemphylium				
Torula				
Ulocladium				
Zygomycetes				
Background debris (1-4+)††	1+		2+	
Hyphal fragments/m3	< 13		27	
Pollen/m3	< 13		< 13	
Skin cells (1-4+)	< 1+		< 1+	
Sample volume (liters)	75		75	
§ TOTAL SPORES/m3		110		11,000

Comments: B) Analysis of replicate sample is delayed

* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher then reported. It is important to account for samples volumes when evaluating dust levels.
The Limit of Detection is the product of a raw count of 1 and 100 divided by the percent read. The analytical sensitivity (counts/m3) is the product of the Limit of Detection and 1000 divided by the sample volume.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

HYGIENE

Hygiene Technologies International, Inc.

000615978

Request For Analysis

Project Number/Task: 2100/001-1 Date Sampled: 01/11/10

Project Contact: SYED MEHDI Turnaround Required: 24 hrs

Lab Destination: EMLAB Lab Contact: INES FREY

SAMPLE ID	VOLUME	MEDIA	ANALYSIS REQUESTED
2100/001-1 TM01OUTWF	75L	Air-o-cell	SPORE TRAP
TM02WF	↓	↓	↓
TM03WF	↓	↓	↓
TM04WF	↓	↓	↓
TM05WF	↓	↓	↓
TM06WF	↓	↓	↓
TM07WF	↓	↓	↓
TM08WF	↓	↓	↓
TM09WF	↓	↓	↓
TM10OUTWF	↓	↓	↓

Special Instructions:

1. Sampled by: [signature] on 01/08/10 @ 11:00 Received by: Brandon Dolan 1/11/10 @ 0910
2. Relinquished by: [signature] on 01/11/10 @ 7:45 Received by:
3. Relinquished by: Received by:

(Please include signature, date, and time)

Lab Use Only:

LOS ANGELES • SAN ... • ... • SAN DIEGO • FRESNO • ... • ...